

Claims

- [c1] 1. A method for coordinating rapidly changing torque demand in an automotive vehicle having an engine and at least one motor, the method comprising:
 - receiving an engine base torque level indicating slowly changing torque produced by the engine;
 - receiving a request for fast desired torque;
 - determining as a motor torque a difference between the fast desired torque and the engine base torque level;
 - determining as an engine fast torque a difference between the request for fast desired torque and the motor torque;
 - determining a motor torque request as the motor torque; and
 - determining an engine torque request as the engine fast torque.
- [c2] 2. The method according to claim 1 wherein determining the motor torque further comprises limiting the difference by at least one motor torque availability limitation.
- [c3] 3. The method according to claim 1 wherein the engine torque request is determined as a base engine torque request if the base engine torque request is less than the

engine fast torque.

- [c4] 4. The method according to claim 1 further comprising limiting the motor torque with at least one motor slew rate limitation prior to determining the engine fast torque.
- [c5] 5. The method according to claim 1 further comprising receiving an indicator as to a source of the request for fast desired torque.
- [c6] 6. The method according to claim 5 further comprising: receiving a request for intended motor torque; and determining the motor torque request as the request for intended motor torque if the source of the request for fast desired torque does not match one of the at least one allowable fast desired torque requesters.
- [c7] 7. The method according to claim 5 further comprising determining the motor torque request as the motor torque only if the source of the request for fast desired torque matches one of at least one allowable fast desired torque requesters.
- [c8] 8. The method according to claim 5 further comprising: receiving a base engine torque request; and determining the engine torque request as the base engine torque request if the source of the request for fast

desired torque does not match one of the at least one allowable fast desired torque requesters.

- [c9] 9. The method according to claim 5 wherein the at least one allowable fast desired torque requesters comprises a traction control torque request.
- [c10] 10. The method according to claim 5 wherein the at least one allowable fast desired torque requesters comprises a transmission torque modulation request.
- [c11] 11. A vehicle comprising:
 - an engine supplying engine torque to drive the vehicle, the engine torque based on an engine torque request;
 - at least one motor supplying motor torque to drive the vehicle, the motor torque based on a motor torque request;
 - a plurality of torque requesting sources; and
 - control logic in communication with the engine, the at least one motor and the plurality of torque requesting sources, the control logic operative to
 - (a) receive an engine base torque level indicating slowly changing torque produced by the engine,
 - (b) receive a request for fast desired torque,
 - (c) determine as a motor torque a difference between the fast desired torque and the engine base torque level, this

difference limited by at least one motor torque availability limitation,

(d) determine as an engine fast torque a difference between the request for fast desired torque and the motor torque,

(e) determine as the motor torque request the motor torque, and

(f) determine as the engine torque request the engine fast torque.

[c12] 12. The vehicle according to claim 11 wherein the engine torque request is determined as a base engine torque request if the base engine torque request is less than the engine fast torque.

[c13] 13. The vehicle according to claim 11 wherein the control logic limits the motor torque with at least one motor slew rate limitation prior to determining the fast engine torque.

[c14] 14. The vehicle according to claim 11 wherein the control logic receives an indicator as to a source of the request for fast desired torque.

[c15] 15. The vehicle according to claim 14 wherein the control logic is further operative to determine as the motor torque request the motor torque if the source of the re-

quest for fast desired torque matches one of at least one allowable fast desired torque requesters.

- [c16] 16. The vehicle according to claim 14 wherein the control logic is further operative to determine as the motor torque request the request for intended motor torque if the source of the request for fast desired torque does not match one of the at least one allowable fast desired torque requesters.
- [c17] 17. The vehicle according to claim 14 wherein the control logic is further operative to:
receive a base engine torque request; and
determine as the engine torque request the base engine torque request if the source of the request for fast desired torque does not match one of the at least one allowable fast desired torque requesters.
- [c18] 18. The vehicle according to claim 14 wherein the at least one allowable fast desired torque requesters comprises a traction control torque request.
- [c19] 19. The vehicle according to claim 14 wherein the at least one allowable fast desired torque requesters comprises a transmission torque modulation request.
- [c20] 20. A method for controlling a motor vehicle having a plurality of torque producing sources for propelling the

vehicle, the method comprising:
receiving a base torque level indicating slowly changing torque produced by a first propelling torque source;
receiving a request for fast desired torque;
determining a second propelling source torque request based on a difference between the fast desired torque and the base torque level, this difference limited by at least one second propelling torque source availability limitation; and
determining a first propelling source torque request based on a difference between the request for fast desired torque and the second propelling torque source request.